

**Remarks**

Claims 1-51 were originally filed in this application.

Claims 4-6, 18, 31, 39-48, and 50-51 were previously canceled without prejudice or disclaimer.

Claims 34-61 were previously withdrawn from consideration as being directed to a non-elected invention. Claim 49 was subsequently rejoined with the elected claims.

Claims 34-48 and 50-61 remain withdrawn from consideration.

No claims are currently amended; no new claims are added; and no claims are currently canceled.

Claims 1-3, 7-17, 19-30, 32-33, and 49 are currently pending with claims 1, 10, 20, and 49 being independent claims.

**Rejections under 35 U.S.C. § 103**

Claims 1-3, 7-17, 19-30, 32-33, and 49 were rejected under 35 U.S.C. § 103(a) as would have been obvious over the disclosure of Emery et al. in U.S. Patent No. 6,482,304 B1 (hereinafter Emery) in view of the disclosure of Horinouchi et al. in U.S. Patent No. 5,980,716 (hereinafter Horinouchi) and the disclosure of Gallagher et al. in U.S. Patent No. 5,736,023 (hereinafter Gallagher) and further in view of the disclosure of Gadini in International Publication No. WO 01/30229 A1 (hereinafter Gadini).

The alleged prima facie case of obviousness is based on Emery for an electrochemical device with first and second compartments having inlets and outlets, a liquid reservoir to contain purified water and further purified water and a point of use fluidly connected to the outlet of the liquid reservoir, and on Horinouchi for the use of water directly from the reservoir as initial feed. The alleged motivation in support of the Emery and Horinouchi combination is “because the Horinouchi patent teaches the use of a reservoir to feed the water through the purification system and recycling the purified water back to the reservoir.” (Office Action dated June 9, 2009.) Gallagher is relied on to teach the conservation of water by the recycle of the concentrate and motivation

therefor is alleged “because the Gallagher patent teaches the conservation of water by the reuse and recycle of the concentrate through the second flow circuit.” (Office Action dated June 9, 2009.) The prima facie case of obviousness also relies on Gadini for the use of purified or softened water for household use, e.g., a washing machine. The alleged motivation to modify Emery by the teachings of Gadini is “because the Gadini patent discloses the household use of the purified water in a washing machine.” (Office Action dated December 31, 2009.)

Applicants respectfully disagree that the respective subject matter of each of claims 1-3, 7-17, 19-30, 32-33, and 49 would have been obvious over Emery in view of Horinouchi and Gallagher, and further in view of Gadini because one skilled in the art would not have modified Emery with Gallagher and because, even if the references could have been combined, any combination resulting from these references would fail to disclose each and every limitation in the particular manner recited in the claims.

Emery discloses a device that cannot be modified to incorporate polarity reversal cycles. Emery at Fig. 1 discloses an asymmetric electrodeionization device. Feed is introduced into chamber 22, having anion exchange material, and into chamber 12, having cation exchange material. (Emery at column 4, lines 31 et seq.) Water in holding tank 4 is introduced into chamber 24, having anion exchange material, and then into chamber 8, having cation exchange material. (Emery at column 4, lines 48 et seq.)

Emery teaches that the cation and anion exchange material are regenerated when water is not flowing. (Emery at Abstract and at column 6, lines 28 et seq.) A cathode 32 generates OH<sup>-</sup> species that regenerates the anion exchange material in chambers 24 and 22, and an anode 6 generates H<sup>+</sup> species that regenerates the cation exchange material in chambers 8 and 12. However, reversing the current polarity would destroy the regeneration features of Emery because electrode 32 would serve as an anode, generating H<sup>+</sup> species that cannot regenerate the anion exchange materials in chambers 24 and 22, since the anion selective membrane would inhibit transport therethrough. Also upon polarity reversal, electrode 6 would serve as a cathode, generating OH<sup>-</sup> species that cannot regenerate the cation exchange materials in chambers 8 and 12 because the cation exchange membrane would inhibit transport therethrough.

Gallagher provides a “novel polarity reversal protocol involving fluid stream distribution, rather than conventional concentrating and depleting fluid stream interchange.” (Gallagher at column 6, lines 42-45.)

Because Emery’s disclosure cannot be relied upon or modified to incorporate polarity reversal techniques, one skilled in the art would not have incorporated Gallagher’s approach thereto, which relies on a novel polarity reversal technique. (See Eisai Co. Ltd. v. Dr. Reddy’s Laboratories, Ltd., 538 F.3d 1353 (Fed. Cir. 2008) (there must be a discernible reason for a skilled artisan to begin with an advantageous feature of a reference only to drop the very feature that gave this advantageous property).)

Gallagher is relied on to recycle the concentrate stream to conserve water. Emery utilizes product water for a flushing stream that successively flows from an anode chamber 5, a cathode chamber 30, and a concentrating chamber 16, which provides a flushing stream wherein the most purified portion thereof counter currently flows against the final part of the second deionising flow path. (Emery at column 5, lines 5-11 and Fig. 1.) Recycling the concentrating stream in Emery would, however, defeat this feature because the concentrating stream would include non-purified water which would not be flowing against the final part of the second deionising flow path. In essence, the concentration gradient between the water at the final portion of the second deionising flow path in compartment 8 and the flushing stream in compartment 6 would be less if the flushing stream were recycled. Because the suggested modification would defeat Emery’s express intent, one skilled in the art would not have incorporated Gallagher’s concentrate recycle approach into Emery.

Relying on In re Keller, 642 F.2d 413 (CCPA 1981), Applicants’ argument as to whether the features of a reference may be incorporated into the structure of the primary reference was dismissed because the test for obviousness is asserted as “what the combined teachings of the references would have suggested to those of ordinary skill in the art.” Because Gallagher shows recycling the concentrating solution, one skilled in the art would allegedly have incorporated such a feature into the systems and techniques of Emery. Applicants note, however, that a rejection cannot be predicated on the mere identification of individual components of claimed limitations but particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed

invention, would have selected these components for combination in the manner claimed. In this instance, there has been insufficient reasons as to why one skilled in the art would have recycled the flushing stream and abandon what Emery touts as the advantages of a concentration differential between the counter currently flowing flushing stream with the stream to be purified.

The prima facie case of obviousness based on Horinouchi is also improper. As noted, Emery recycles the purified water in a second flow path. Emery expressly states that “It is an object of the present invention to provide an electrodeionization method and apparatus which is capable of providing a volume of water of a high ionic purity ready for use when desired.” (Emery at column 1, lines 39-42.) To that end, Emery only recycles the second, more purified flow stream through a tank, rather than recycling the first and the second flow stream. One skilled in the art would have recognized that introducing water to be treated into a tank and incorporating a recycle path therethrough would defeat Emery’s objective. Thus, one skilled in the art would not have modified Emery as suggested to incorporate the arrangement of Horinouchi. (Eisai Co. Ltd. v. Dr. Reddy's Laboratories, Ltd., 538 F.3d 1353 (Fed. Cir. 2008).)

The prima facie case of obviousness based on Emery and Gadini is alleged because “the Gadini patent discloses the household use of the purified water in a washing machine.” However, there is no explanation as to why one skilled in the art would have utilized the device of Emery as modified with Horinouchi and Gallagher into Gadini’s washing machine.

Further, the prima facie case of obviousness is improper because, even if the references could have been combined, any combination resulting therefrom fails to disclose each and every limitation as claimed. For example, none of the references teaches a household distribution network including a connection to at least one of a sink faucet, a shower head, and a dishwasher.

For at least these noted reasons, the respective subject matter of each of claims 1-3, 7-17, 19-30, 32-33, and 49 would not have been obvious over Emery in view of Horinouchi and Gallagher, and further in view of Gadini.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-3, 7-17, 19-30, 32-33 and 49 under 35 U.S.C. § 103 as would have been obvious over Emery in

view of Horinouchi and Gallagher, and further in view of Gadini is respectfully requested.

### Conclusion

In view of the foregoing remarks, this application is in condition for allowance; a notice to this effect is respectfully requested. If the Examiner believes that the application is not in condition for allowance, the Examiner is requested to call Applicants' attorney at the telephone number listed below.

If this Response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this Response, including an extension fee that is not covered by an accompanying payment, please charge any deficiency to Deposit Account No.

50/2762.

Respectfully submitted,  
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